

## ASSIGNMENT 3

Textbook Assignments "Radar," chapter 3, pages 3-1 through 3-23.

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3-1. The AN/APS-115B radar set is what band of radar?<br><br>1. W<br>2. X<br>3. Y<br>4. Z                                                                                                                      | 3-7. What is the manual tilt range of the radar antenna control from aircraft horizontal?<br><br>1. $\pm 15^\circ$<br>2. $\pm 30^\circ$<br>3. $+10^\circ$ to $-20^\circ$<br>4. $+20^\circ$ to $-10^\circ$         |
| 3-2. What component of the AN/APS-115B radar set combines the radar video?<br><br>1. APP<br>2. RIU<br>3. CRS<br>4. SDD                                                                                         | 3-8. What will 000° displayed indicate with HEADING STAB selected on the radar antenna control?<br><br>1. Aircraft heading<br>2. True heading<br>3. Magnetic heading<br>4. Target heading                         |
| 3-3. What component displays radar video information?<br><br>1. APP<br>2. RIU<br>3. CRS<br>4. SDD                                                                                                              | 3-9. With respect to the aircraft, what is the mechanical limit for radar antenna stabilization?<br><br>1. $\pm 10^\circ$<br>2. $\pm 15^\circ$<br>3. $\pm 20^\circ$<br>4. $\pm 30^\circ$                          |
| 3-4. Tilt stabilization of the radar antennas is accomplished by use of pitch and roll data from what component?<br><br>1. APP<br>2. RIU<br>3. CRS<br>4. SDD                                                   | 3-10. With the scan switch In FULL on the radar antenna control, how many degrees will the antenna scan during single system operation?<br><br>1. $45^\circ$<br>2. $90^\circ$<br>3. $180^\circ$<br>4. $240^\circ$ |
| 3-5. With both antennas in full scan, which of the following points are the crossover points relative to aircraft heading?<br><br>1. 000° and 180°<br>2. 060° and 270°<br>3. 090° and 270°<br>4. 120° and 300° | 3-11. With the scan switch in SECTOR on the radar antenna control, how many degrees will the antennas scan?<br><br>1. $45^\circ$<br>2. $90^\circ$<br>3. $180^\circ$<br>4. $240^\circ$                             |
| 3-6. What operator station contains the radar system operating controls?<br><br>1. Acoustic sensor<br>2. Nonacoustic sensor<br>3. Tactical coordinator<br>4. Navigator/communicator                            |                                                                                                                                                                                                                   |

- 3-12. The antenna position programmer generates which of the following signals?
1. Signals for antenna azimuth drive motors only
  2. Signals for antenna tilt drive motors only
  3. Signals for timing and synchronization of the RTs, RIU, and IFF only
  4. Signals for antenna azimuth and tilt drive motors and signals for timing and synchronization of the RTs, RIU, and IFF
- 3-13. What position is selected on the APP fault isolation switch for the normal mode of operation?
1. ON
  2. OFF
  3. NORMAL
  4. OPERATE
- 3-14. What frequency agile component in the radar transmitter of the AN/APS-115B radar system is NOT in a standard radar transmitter?
1. Magnetron
  2. Klystron
  3. Modulator
  4. Synchronizer
- 3-15. The frequency agility of the AN/APS-115B radar system has what positive effect on the system?
1. Doubles the PW of the transmitter
  2. Enhances the clutter elimination capability
  3. Decreases the antenna scan speed
  4. Decreases PRF, which increases operational range
- 3-16. What component generates the synchronization that locks the transmitter and receiver AFC together?
1. Manual varactor
  2. Motor-driven varactor
  3. Receiver agile modulator-demodulator
  4. Transmitter agile modulator-demodulator
- 3-17. What subsection of the radar RT contains a desiccant cartridge?
1. Waveguide pressurization system
  2. Transmitter
  3. Receiver
  4. BITE
- 3-18. Which of the following two beam modes will the radar antenna radiate?
1. Pencil and conical
  2. Elliptical and cosecant squared
  3. Pencil and cosecant squared
  4. Elliptical and conical
- 3-19. What are the dimensions of the AS-2146/APS-115 radar antenna spoiled beam?
1. 2.5° by 2.5°
  2. 2.5° by 3.8°
  3. 2.5° by 20.0°
  4. 3.8° by 20.0°
- 3-20. The antenna elevation parking control is used to stow the aft antenna at zero-degree relative aircraft heading when the aft radar is secured.
1. True
  2. False
- 3-21. What mode is selected on the forward radar control panel to operate the forward radar in the sweep frequency mode?
1. LONG
  2. SHORT
  3. FIXED
  4. AGILE

- 3-22. What mode is selected on the radar control panels to operate the radar antennas at a 6-RPM scan rate?
1. LONG
  2. SHORT
  3. STC
  4. FTC
- 3-23. On the radar control panels, what section on the high voltage select switch indicates to the operator that the radar system is ready for use when illuminated?
1. WARM-UP
  2. STANDBY
  3. HV OFF
  4. HV FAIL
- 3-24. What selection is made on the radar control panels to improve the display when a target is near a landmass?
1. LONG
  2. SHORT
  3. STC
  4. FTC
- 3-25. What knob is adjusted on the radar control panels to match the radar noise levels between the forward and aft radars?
1. STC DEPTH
  2. STC RANGE
  3. RCVR GAIN
  4. MAN TUNE
- 3-26. What knob on the radar control panels varies the amount of receiver attenuation for close-in targets?
1. STC DEPTH
  2. STC RANGE
  3. RCVR GAIN
  4. MAN TUNE
- 3-27. What knob on the radar control panels varies the distance between 0 and 20 nautical miles to which intensity of close-in targets is effectively reduced?
1. STC DEPTH
  2. STC RANGE
  3. RCVR GAIN
  4. MAN TUNE
- 3-28. With the AFC/MAN switch in the MAN position on the radar control panels, the radars are in what mode of operation?
1. Short
  2. Long
  3. Sweep
  4. Fixed
- 3-29. The radar scan converter control routes the on-line/off-line selection of the radar set operation to what component?
1. APP
  2. RIU
  3. CRS
  4. SDD
- 3-30. Selection of the on-line operation on the radar scan converter control will disable all manual selections with the exception of the power switch on the front panel of what component?
1. CP
  2. APP
  3. RIU
  4. LU 1
- 3-31. What light will illuminate on the radar scan converter control to indicate the radar set is in the off-line mode of operation?
1. APP
  2. RIU
  3. TEST
  4. OFF LINE

- 3-32. The 128 nautical mile range is selected on the radar scan converter control during off-line operation of the radar set. How many range marks are added to the radar video?
1. 8
  2. 2
  3. 12
  4. 4
- 3-33. What component combines and amplifies radar and IFF video, and then routes this data to the nonacoustic operator's display?
1. APP
  2. RIU
  3. CRS
  4. SDD
- 3-34. On the RIU, what control is used by the operator to input commands selected on the front switch panel into the logic circuits?
1. ENTER push button
  2. LOAD push button
  3. STOR switch
  4. OPER switch
- 3-35. Which of the following types of display presentations are selectable by the operator on the RIU front switch panel?
1. A-scan and PPI scan only
  2. B-scan and PPI scan only
  3. A-scan and B-scan only
  4. A-scan, B-scan, and PPI scan
- 3-36. What component processes and coordinates forward and aft antenna position and scan functions, the application of power to both sets, and controls transmit and receive modes of the two RTs?
1. Logic unit one
  2. Central computer
  3. Radar interface unit
  4. Antenna position programmer
- 3-37. The sensor station 3 keyset generates primary control signals in the on-line mode of operation, which are processed through the central computer, LU 1, and the RIU.
1. True
  2. False
- 3-38. What is the range of the 11D13A radar maintenance trainer?
1. 0 to 80,000 miles
  2. 0 to 80,000 kilometers
  3. 0 to 80,000 yards
  4. 0 to 80,000 feet
- 3-39. In what unit of measure is an actual weapons control radar ranges normally expressed?
1. Foot
  2. Yard
  3. Kilometer
  4. Mile
- 3-40. What are the modes of operation of the 11D13A trainer?
1. Track, bomb director, and fire control
  2. Bomb director, track, and search (PPI)
  3. Fire control, bomb director, and track
  4. Search (PPI), bomb director, and fire control
- 3-41. What is the total number of submodes available in the fire control mode?
1. Five
  2. Two
  3. Six
  4. Four

- 3-42. What is the automatic time-out (time-delay) circuit used to prevent in most radar sets?
1. Power application to the filaments
  2. Power application to the high-voltage sections prior to proper warm-up time
  3. Radar transmission until airborne
  4. Personnel injury during radar maintenance
- 3-43. During the search mode of operation, which of the following functions is NOT available?
1. Selectable range marks
  2. Horizon antenna scan
  3. Manual antenna control
  4. Operable B-scope
- 3-44. In the fire control mode. operation is limited to what minimum range in yards?
1. 40,000
  2. 20,000
  3. 3,500
  4. 2,500
- 3-45. Which of the following functions is NOT available in the bomb director mode?
1. PPI display
  2. Controllable range and azimuth marks
  3. Depressed-center sector scan
  4. Operating ranges same as the search mode
- 3-46. The basic controls of the 11D13A are grouped into what total number of major categories?
1. Five
  2. Two
  3. Six
  4. Four
- 3-47. The standby position of the 11D13A power switch applies which of the following types of power to the system?
1. Filament power only
  2. Keep alive voltage to the TR tubes only
  3. Filament power and keep alive voltage to the TR tubes
  4. High voltage power to the varactor
- 3-48. The mode switch of the 11D13A selects one of the submodes of operation.
1. True
  2. False
- 3-49. What component of the 11D13A allows the operator to select manual search operation?
1. Antenna control
  2. Mode switch
  3. Receiver gain
  4. Power selector
- 3-50. With the 11D13A in the basic search mode, what type of display is presented?
1. Depressed-center PPI
  2. A-scope
  3. B-scope
  4. PPI
- 3-51. With the 11D13A in the automatic search mode, which of the following indicators will display information?
1. A-scope and B-scope
  2. A-scope and PPI
  3. B-scope and PPI
  4. B-scope and depressed-center PPI
- 3-52. Which of the following items causes the "jizzle" on the display in a fire control radar set during the automatic search mode of operation?
1. Antenna nutation
  2. Antenna beamwidth
  3. Acquisition marks
  4. Target return

IN ANSWERING QUESTION 3-53, REFER TO  
FIGURE 3-11 IN THE TEXTBOOK.

- 3-53. With the 11D13A in the automatic search mode, what feature on the B-scope can be used to mark an area of target return?
1. Range sweep
  2. Acquisition symbol
  3. Jizzle
  4. Horizon line
- 3-54. What does the artificial horizon line indicate in a fire control radar set automatic search mode of operation?
1. Target elevation
  2. Target track
  3. Aircraft track
  4. Aircraft attitude
- 3-55. Which of the following items does NOT constitute the major display differences between the automatic and manual search modes?
1. The acquisition marks bracket the B-trace
  2. The acquisition marks move with the B-trace
  3. The antenna is controllable in azimuth
  4. Artificial horizon line is manually controlled
- 3-56. In the operation of a fire control radar set, what action begins the time period for acquisition?
1. Lock on is obtained
  2. Power is applied
  3. The operator switches antenna control from automatic to manual search
  4. The operator places the acquisition symbol over the selected target

IN ANSWERING QUESTION 3-57, REFER TO  
FIGURE 3-13 IN THE TEXTBOOK.

- 3-57. Which of the following indications is removed from the B-scope display during automatic track mode of a fire control radar set?
1. Acquisition symbol
  2. Range strobe
  3. Steering dot
  4. Range circle
- 3-58. What is indicated by the steering dot of a fire control radar set?
1. Antenna azimuth
  2. Antenna elevation
  3. Antenna position
  4. Antenna range
- 3-59. In the automatic track mode of a fire control radar set, what happens when the system breaks lock on?
1. The system reverts to the manual search mode
  2. The system reverts to the automatic search mode
  3. The system reverts to the manual track mode
  4. The system remains in automatic track mode and reacquires the target when it is within required parameters
- 3-60. Which of the following events occurs in the fire control radar set breakaway mode?
1. The range circle appears
  2. The large X appears
  3. The steering dot disappears
  4. The range notch disappears
- 3-61. Which of the following displays is used in the fire control radar bomb director mode of operation?
1. A-scope
  2. E-scope
  3. C-scope
  4. Depressed-center PPI

- 3-62. What component of the IFF transponder system on the S-3 aircraft provides lobing action to prevent the antenna system from being blanked out during aircraft maneuvers?
1. C-6280(P)/APX
  2. SA-1769/A
  3. RT-859/APX-72
  4. TS-1843/APX
- 3-63. What component on the S-3 aircraft provides the IFF transponder operation and test controls?
1. C-6280(P)/APX
  2. SA-1769/A
  3. RT-859/APX-72
  4. TS-1843/APX
- 3-64. What component on the S-3 aircraft provides the GO/NO-GO indications on the IFF transponder control?
1. C-6280(P)/APX
  2. SA-1769/A
  3. RT-859/APX-72
  4. TS-1843/APX
- 3-65. What is the frequency of received signals for the IFF transponder?
1. 1030 kHz
  2. 1090 kHz
  3. 1030 MHz
  4. 1090 MHz
- 3-66. On the S-3 aircraft, what component determines the Mode C information pulses for the IFF transponder?
1. The transponder control
  2. The transponder RT
  3. Airspeed-altitude computer
  4. COTAC pressure altimeter
- 3-67. What is the total number of possible codes available in Mode C IFF?
1. 2,048
  2. 2,465
  3. 4,096
  4. 4,930
- 3-68. When the IDENT function is used in Mode 1 of the IFF transponder, how many total times is the reply pulse train containing the code in use transmitted for each trigger pulse received?
1. One
  2. Two
  3. Three
  4. Four
- 3-69. When is the SPI pulse present in the reply pulse train in Mode C?
1. When a D4 pulse is present
  2. When a D4 pulse is not present
  3. When a F2 pulse is present
  4. When a F2 pulse is not present
- 3-70. In an IFF/SIF system, the X-pulse is used for which of the following purposes?
1. Emergencies
  2. Timing
  3. Helicopters
  4. Drones
- 3-71. The IFF interrogator transmits on what frequency?
1. 1030 kHz
  2. 1090 kHz
  3. 1030 MHz
  4. 1090 MHz
- 3-72. What component of the interrogator set generates the initiation and interrogation cycles of the system?
1. RT-868A/APX-76A(V)
  2. SN-416A/APX-76A(V)
  3. SA-1568A/APX-76A(V)
  4. C-7383/APX-76A(V)
- 3-73. What is the nominal peak power level of the RF pulses generated by the RT-868A/APX-76A(V)?
1. 1 kW
  2. 2 kW
  3. 6 kW
  4. 8 kW

3-74. What is the nominal peak power level of the RF pulses from the switch-amplifier to the difference antenna pattern?

1. 1 kW
2. 2 kW
3. 6 kW
4. 8 kW

3-75. When the TEST-CHAN CC switch is set to TEST on the C-7383/APX-76A(V) interrogator control box, what signal is modified in the IFF system to place the zero-range replies at approximately 4 nautical miles on the radar display?

1. Normal suppression
2. ISLS
3. RSLs
4. Trigger timing